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STATE OF MONTANA

BULLETIN

OF THE

Department of Public Health

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No. 8

MONTANA STATE BOARD OF HEALTH

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HELENA, MONTANA.

Published Monthly at Helena, by the State Board of Health.

"The science of disease prevention, if properly applied, can add fifteen years to the present average length of human life."—Prof. Irving Fisher, Yale.

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WATER SUPPLIES IN RELATION TO TYPHOID FEVER IN MONTANA.

(By W. M. Cobleigh, Chemist to the State Board of Health.)

The Fifth Biennial Report of the State Board of Health shows that during the year ending June 30th, 1910, there were a total of six hundred and seventy-four cases of typhoid fever in the state. There were ninety-five deaths from typhoid during the same period and based on the estimated population, this is a death rate of twenty-seven per hundred thousand inhabitants.

In discussing the above facts, Dr. T. D. Tuttle makes the following statements:

"We note that in certain localities typhoid fever begins early in the summer and stops toward fall, whereas, in other localities there is very little typhoid during the summer, but this disease increases during the fall months. It is now a pretty well established fact that summer typhoid fever is due to unsanitary conditions surrounding the locality, and especially fly infection; whereas fall typhoid fever is largely due to water infection, so that by study of the above mentioned tables one can locate to a fairly accurate degree the points at which infection is due to unsanitary conditions and those in which it is largely due to water pollution. This rule is not always absolute. For instance, some typhoid infections occurring in the

fall months are due to fly infection and other unsanitary conditions.

"On the whole, our typhoid cases are far too numerous. This disease can be prevented by guarding our water supplies and seeing that sanitary conditions are maintained throughout our state."

During the period covered by the above report, the writer made a great many sanitary analyses of water from various parts of the state. There appears to be some very close relations between Dr. Tuttle's statements concerning water infection and the analytical data obtained, which will be pointed out below.

The number of cases of typhoid fever originating in cities supplied with water from uncontaminated mountain streams is very small. In many instances the city reservoirs are located above human habitation and are filled with water from pure mountain streams. Many of the pure city water supplies were analyzed in the laboratory in order to secure analytical data that could be used for comparison when studying a water that was suspected of being the source of typhoid infection. The average of the analyses of thirteen of the city water supplies in the state is given below.

	Parts Per Million
Solids	99.1
Free ammonia .....	.0152
Albuminoid ammonia .....	.028
Nitrogen as nitrites	none
Nitrogen as nitrates .....	.102
Chlorine	Absent in all cases.

It should be clearly understood that these figures cannot be used directly to prove the presence or absence of typhoid infection in any given case. However, when these figures are used in connection with a knowledge of the sanitary conditions surrounding a water supply, they can be used with certain limitations by the expert in determining the general sanitary qualities of a surface water that has become contaminated.

It appears that there is more typhoid in those portions of the state where it is impossible to take the water supplies from the streams above human habitation. For instance, the Yellowstone River is the main drainage channel for the valley through which it flows. This valley is one of the prosperous farming regions of the state and, therefore, the water shed is more or less contaminated not only by farm habitations but also by human excreta from passenger trains. The river also

receives small quantities of city sewage at several points. The cities using water from the Yellowstone River are too far distant to take water from mountain streams above habitation.

In the Board of Health bulletin referred to above, it is stated that 40.9 per cent of all cases of typhoid fever in the state in 1909 originated along the Yellowstone river, and that the percentage for 1910 was 30.1 per cent. The following analyses of the Yellowstone river at various points compared with the average of the analyses of the pure city supplies and interpreted in the light of information obtained by a sanitary survey of the river, gives information that is of value in determining the relation between typhoid fever in Montana and the purity of the water supplies.

Lab. No.....		Date of Sample.....	Free Ammonia	Albuminoid Ammonia..	Nitrogen as Nitrites..	Nitrogen as Nitrates.	Oxygen Required.....	Chlorine.....	Solids in Solution.....
326.	Yellowstone River—Columbus	1910.	0.06	0.19	None	.012	1.85	6.5	110
337.	Yellowstone River—Above Billings	July 15	0.037	0.173	Trace	.068	1.4	5.09	182
339.	Yellowstone River—One mile below Billings	July 18	0.285	0.215	Trace	.068	6.5	5.09	168
334.	Yellowstone River—Fourteen miles below Billings	July 18	0.175	0.125	Trace	.045	1.75	6.1	182
345.	Huntley Project Canal—Two miles from intake	July 18	0.16	0.04	Trace	.045	1.75	6.1	140
350.	Yellowstone River—Below Forsyth	July 19	0.17	0.195	Trace	None	2.15	7.6	190
356.	Yellowstone River—Below Miles City	July 10	0.017	0.123	None	.045	1.6	6.5	...
109.	Laurel—N. P. water supply	Jan. 22	.06	.06	.0106	.50	.8	15.0	594
43.	Laurel—N. P. water supply	Sept. 4	.13	.09	.0091	.22	....	14.8	350
		1909.							

The number of cases of typhoid fever reported from Cascade county in 1910 represents 25.6 per cent of the total number of cases reported for the year. Unfortunately, no analyses were made of the water supplies in that region during this time.

It should be clearly understood by the public that any pure mountain stream becomes contaminated that flows through an inhabited valley unless very unusual precautions are taken to protect the water shed from contamination. To illustrate this point the following analyses are tabulated.

	PARTS PER MILLION.		
	Lab. No. 250—Bozeman Creek in canyon above inhabitation	Lab. No. 241—Bozeman Creek at mouth after receiving portion of Bozeman sewage	Lab. No. 251—Bozeman Creek just above Bozeman after receiving contamination from water shed.....
Free ammonia .....	.021	.016	.016
Albuminoid ammonia .....	.079	.216	.124
Nitrites	None	.01	.002
Nitrates	None	.40	.40
Chlorine	Trace	1.5	Trace

The data here reported represents only a small fraction of the information that has been accumulated for use of the Board of Health. All of the evidence seems to point to the conclusion that in those portions of the state where surface waters cannot be used for city purposes near their sources in the mountains, that there is a large amount of typhoid fever compared with the districts where the pure mountain streams can be used before they become contaminated. Information of this kind should be in the possession of the public in order to arouse more interest in laws designed to protect the purity of the water supplies of the state and also to encourage the installation of purification plants where contaminated waters must be used.

WHAT IS AN EFFICIENT HEALTH OFFICER?

This question has been answered in a variety of ways. Judging from the salaries received, we would say the most efficient Health Officer, at least so far as his personal ends are

concerned, is the health officer who makes the greatest noise and who gives the newspapers the greatest number of stories of a sensational character.

Another answer might be that the most efficient health officer is the one who always has a certain number of communicable diseases in his locality and keeps the people of the community well posted as to his activities in fighting these diseases.

Another definition, and one which I think is nearer the mark, might be that the most efficient health officer is one who keeps his community free from all communicable diseases, but when a communicable disease appears in his locality, takes such action as to cause the least possible exposure of his people to the disease.

Another definition, and one which I think an excellent one, which was given at the International Congress of Hygiene this Fall is as follows: "An efficient health officer is one who reduces a high mortality, or who maintains an already low mortality." This latter definition includes the one preceding it, because if a low mortality is maintained, the communicable diseases must be prevented.

Of the health officer I ask, do your death records for the last year show that you are an efficient health officer? Of the people I ask, are you supporting your health officer in the suppression of disease in your community, or are you grumbling in case he is receiving a salary that justifies him in doing the work necessary to maintain a low mortality which indicates an efficient health officer?

There are very few localities in this state where you can grumble on account of the salary received by your health officer, because the majority of the health officers do not receive salary enough to justify their making an active effort to suppress disease in the locality, but this does not mean that many of our health officers are not making this active effort regardless of the salary received.

DAIRIES.

Name.	Score.	HELENA.
COLUMBIA FALLS.		
Geo. Mengon	91	Fred Brewer 98
		Harry Burgess 91
EUREKA.		F. M. Pyle (E. Helena) 87
A. L. Purdy	93	J. L. Bompert 98
J. Osloske	90	L. McKinney 90
		William Burton 94
HARLOWTON.		Fred Bienhorn 93
H. C. Klock	98	E. W. Colby 92
		Con Peterson (E. Helena) 93

J. L. Mosher	97
Mary Miller	97
L. A. Ramsey	95
A. M. Whitcomb	98
Thos. Nemecek	88
A. G. Amacker	95
McComas & Middlemas	98
Joe Schnyder	98
S. J. Burgess	98

KALISPELL.

Betty Schaefer	90
Robert Nordtome	80
Viola Williams	61
Fah & Kuhne	75
Burke & Hofstetter	89
J. L. Ricker	94

MISSOULA.

Otto Quast	91
Richli Bros	89
C. E. Quast	93

Meyer & Albers	86
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PARADISE.

E. Johnson	83
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PLAINS.

Frank Boyer	90
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POLSON.

Clara Heyer	81
Albert Hepp	77
T. L. Cope	90

ST. IGNATIUS.

Sisters of Charity	92
Jos. Michaud	91

THOMPSON.

Lux Bros.	98
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WHITEFISH.

D. Haskill	92
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CONFECTIONERY AND BAKE SHOPS.

Name.	Score.
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CAMAS.

Chas. E. Ramsey	92
John Reiser	96

DIXON.

M. C. Meyer	77
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HARLOWTON.

Peter Contratto	78
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KALISPELL.

J. R. Listle	98
C. A. Zehn	98

LEWISTOWN.

Chas. Williams	80
Francis Sullivan	91

LIBBY.

Chas. Dunlap	97
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MISSOULA.

Alex Benson	73
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MOORE.

W. F. Roessler	79
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PLAINS.

J. H. Boyer	86
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POLSON.

Max Lovinger	81
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RONAN.

Chas Dorris	80
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WHITEFISH.

E. E. Zehn	66
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HOTELS AND RESTAURANTS.

Name.	Score.
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BUTTE.

M. R. Aylec	96
Geo. Bullett	72
E. J. Brennan	95
Buller Bros.	90
Castro & Dinas	86
Caros & Stokas	85
John Goddard	100
Peter J. Greven	100
Louis Guidi	95
Frank Cash	96
Steve Golubin	87
Hong Kcng	78
Mrs. J. W. Hortan	92
Mrs. John Harris	83
Iona Cafe	84
P. H. Kenny	89
Julius Kuhl	96
Daniel Liston	81
Mrs. K. Marhart	93
Chamaugan Cafe	95
Mrs. Con Noonan	100
Chas. Machos Co.	76
J. L. Regan	96
L. P. Morris	76
Mrs. Thomas Smith	82
Staikos Bros	66
Wayne Pratt	90
Mrs. V. Streb	96

P. J. Tevlin	100
Mrs. J. Van Buren	69
W. L. Wise	96
Worth Bros.	78
W. R. Demsey	95
Sarah Temby	100
John H. Johns	100
John Kelly	100
Thune, D. E.	100
L. S. Miladinovich	88
H. H. Fuhr	93
Lydia Brodie	95
Leo Heron	89
Lucian Raverat	89
Mrs. Matt Hilden	80
Helen Zick	100
Louise Brunell	87
L. A. Brame	75
Mrs. Mary Adamick	76
James Weiser	89
Mrs. Sabina Schultz	85
Mrs. Dan Buckley	100
A. J. & E. Guill	87
Edith Willard	87
Peter Sologub	84
Mrs. M. Wordsworth	95
Peter Koclan	77
Mrs. Flora Cushing	83
J. A. Dorwan	89

CAMAS.

John Reiser	96
Mrs. C. G. Maher	91
William Gird	96

COLUMBIA FALLS.

W. Patterson	95
Lewis & Miller	77
J. O. Barker	92

DIXON.

Geo. W. Bateman	88
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EUREKA.

Frank Him	94
Doxie & Cunningham	95
W. N. Sakamoto	84

HARLOWTON.

Weber & Botts	81
P. S. Olson	89
M. Takahasi	80
F. T. Handy	76

KALISPELL.

J. R. Listle	95
Montana Cafe	85
August Heller	87
Chas. Hanbow	65
C. J. Vantassel	85
Mrs. C. M. Walker	67
T. Niclerco	89
J. S. Yakes	83
C. A. Nelson	88
A. H. Hay	100
P. J. Feeney	79
Lee Lack	78

LEWISTOWN.

J. A. Alexander	92
Geo. H. Kirk	85
Frank Counts	83
B. E. Muns	82
Christie & Lowman	75
W. S. Bright	79
Mrs. J. M. Rose	92
Louie Yore	92
C. B. Willard	89
Catlin & Head	88

LIBBY.

G. Nelmeyer	84
Mattie Roderick	82
N. T. Gerhard	86
Oscar Pederson	80
Mrs. Mary Tomte	90
Kennedy & Co.	92
Mrs. M. Coats	89

MISSOULA.

Lindborg Bros.	97
John Dugal	88
Ole Holt	94
Phil Kinney	88
Palace Noodle Parlors	100
J. B. Pigg	95
Y. Nakade	92
Warner & Nink	98
John F. Miller	90
W. H. Hunt	90
H. T. Shepherd	91
Thos. H. Gah	96

W. E. Wheeler	98
Chas. Martinson	86
Sam Young	100
E. O. Wood	97
Tony R. Vrakawa	98
James Munroe	95
Oh Sing Co.	95
Henry Haugen	82
Spooner & LaCasse	98
William Herwig	98
Mullemer, Halle & Rick	90
Mrs. T. J. Walterskirchen	97
Bryan & Chesley	95
John Haynes	100
Y. W. C. A.	100
Chas. Schrage	92
H. J. Titus	100

MOORE.

J. D. Kipe	95
Skyles & Moore	77
A. Reimsnider	79

PARADISE.

Mrs. A. T. Osborne	84
J. P. Corse	74
Mary H. Maddox	76

PLAINS.

L. N. Van Vranken	90
E. P. Gray	81

POLSON.

Mrs. L. A. Wright	66
Poppenfuss & Melvin	50
H. C. Walker	61
W. B. Baggett	53
Durst, Dennison & DePhillips ..	87
Mrs. M. F. Masse	87
Mrs. S. McIlwain	83
Mrs. A. M. Gates	83
F. L. Gray	95
C. H. Brown	91

RAVALLI.

T. C. Bateman	93
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RONAN.

A. M. Sterling	93
Chas. Dorris	80

ST. IGNATIUS.

J. H. Pelky	77
Dressel & Hoffman	71
Mrs. Ruby Jones	98
W. F. Diedrick	98

THOMPSON.

R. R. Hoyt	92
Mrs. Wm. Cummings	94
Hoyt & Peterson	94

TWO DOT.

Katherine Bennett	92
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WHITEFISH.

Charlie Sun	90
C. H. Shaver	90
C. W. Pruy	97
Lee	87
M. Hori	78
E. E. Zehn	92

MEAT MARKETS AND SLAUGHTER HOUSES.

CAMAS.

Rollo Hoffman (Mt. Mk.)	89
Rollo Hoffman (Sl. Hs.)	80

COLUMBIA FALLS.

Crum Bros. (Mt. Mk.)	85
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DIXON.

Chas. M. Larson (Mt. Mk.)	71
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EUREKA.

Sinclair & Heller (Mt. Mk.)	88
Sinclair & Heller (El. Hs.)	63

HARLOWTON.

A. C. Graves (Mt. Mk.)	85
A. C. Graves (Sl. Hs.)	75

KALISPELL.

H. Bierman (Mt. Mk.)	88
H. Bierman (Sl. Hs.)	60
McDougall & Jensen (Mt. Mk.)	100
Nollar & Marto (Mt. Mk.)	100
Nollar & Marto (Sl. Hs.)	78
Jarvis & Main (Mt. Mk.)	88
Jarvis & Main (Sl. Hse.)	65

LEWISTOWN.

Joe Dugart (Mt. Mk.)	85
Slater Bros (Mt. Mk.)	70
Abel Bros. (Mt. Mk.)	90

LIBBY.

Joughim & Cady (Mt. Mk.)	75
Joughim & Cady (Sl. Hs.)	49

MISSOULA.

W. H. Hebard (Mt. Mk.)	91
John R. Daily Co. (Mt. Mk.)	73
John R. Daily Co. (Sl. Hs.)	67
John R. Daily Co. (Mt. Mk.)	73
John R. Daily Co. (Mt. Mk.)	73
John R. Daily Co. (Mt. Mk.)	77

Gubler & Gorman (Mt. Mk.)	73
Gubler & Gorman (Sl. Hse.)	77
Koopman & Wissbod (Mt. Mk.)	74
Koopman & Wissbod (Sl. Hs.)	62
Louis Gries (Mt. Mk.)	75
Hoel & Neill (Ht. Mk.)	95
Layfield & Hendricks (Mt. Mk.)	77

MOORE.

Abel & Quackenbush (Sl. Hs.)	85
Abel & Quackenbush (Mt. Mk.)	90

PLAINS.

McGowan Com. Co. (Mt. Mk.)	89
McGowan Com. Co. (Sl. Hs.)	82
Sanders Co. Com. Co. (Mt. Mk.)	78
Sanders Co. Com. Co. (Sl. Hs.)	92

POLSON.

Lambert Merc. Co. (Mt. Mk.)	92
Lambert Merc. Co. (Sl. Hs.)	78
City Meat Market	78

RONAN.

Chas. Dorris (Mt. Mk.)	87
H. M. Gehlert (Mt. Mk.)	84
H. M. Gehlert (Sl. Hs.)	55

ST. IGNATIUS.

Buckhouse Bros (Mt. Mk.)	75
Buckhouse Bros. (Sl. Hs.)	48

THOMPSON.

Thompson Meat Co. (Mt. Mk.)	89
Thompson Meat Co. (Sl. Hs.)	87

TWO DOT.

F. E. Robertson (Mt. Mk.)	90
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WHITEFISH.

Whitefish Meat Co. (Mt. Mk.)	70
Nollar* & Marto (Mt. Mk.)	80

MILK ANALYSIS.

Dealer.	Address.	Total Solids, (%)	Fat. (%)	Remarks.
Geo. Mengon	Columbia Falls	13.64	4.70	Standard.
Cunningham & Doxle	Columbia Falls	12.45	3.25	Standard.
A. F. Purdy	Eureka	14.58	4.65	Standard.
John Osloska	Eureka	13.08	4.00	Standard.
W. N. Sakamoto	Eureka	12.91	3.45	Standard.
Mrs. Mary Coats	Eureka	12.40	2.60	Low in fat.
R. W. Aschenback	Harlowton			Analysis incomplete.
P. S. Olson	Harlowton	12.89	3.90	Standard.
F. T. Handy	Harlowton	10.97	1.85	Low in fat.
Weber & Botts	Harlowton	10.20	1.20	Low in fat.
H. M. Hanson	Judith Gap	13.64	4.60	Standard.
Clara Seng	Judith Gap	13.12	4.05	Standard.
J. S. Yakes	Kalispell	12.25	2.50	Standard.
C. M. Walker	Kalispell	11.97	3.15	Low in fat.
Robert Nordtome	Kalispell	12.07	3.30	Analysis incomplete.
J. R. Listle	Kalispell	12.79	3.90	Standard.
A. H. Hay	Kalispell	13.28	4.10	Standard.
Frank Counts	Lewistown	12.95	3.80	Standard.
Catlin & Head	Lewistown	12.05	3.25	Standard.
Fah & Kuhne	Lewistown			Sour, analysis incomplete.
Christie & Lowman	Lewistown	13.09	4.50	Standard.
A. B. Powell	Lewistown	13.49	4.20	Standard.
J. L. Ricker	Lewistown	13.69	4.35	Standard.
Fah & Kuhne	Lewistown	11.79	3.15	Low in fat.
Shing Hie	Lewistown	10.65	1.50	Low in fat.
N. T. Gerhard	Lisby	13.19	3.95	Standard.
Mrs. Viola Hamilton	Libby	11.99	2.70	Low in fat.
Co-operative Creamery Co.	Miles City	12.82	4.30	Standard.
Co-operative Creamery Co.	Miles City	12.00	4.50	Standard.
Co-operative Creamery Co.	Miles City	12.56	4.00	Standard.
Co-operative Creamery Co.	Miles City	12.69	3.90	Standard.
Co-operative Creamery Co.	Miles City	14.61	5.80	Standard.
Co-operative Creamery Co.	Miles City	12.87	4.15	Standard.
Miles City Creamery Co.	Miles City	13.90	4.90	Standard.
Miles City Creamery Co.	Miles City	13.20	4.20	Standard.
Miles City Creamery Co.	Miles City	14.13	5.05	Standard.
Sam Mercer	Missoula	13.04	3.90	Standard.
Meyers & Albers	Missoula	12.98	4.10	Standard.
Richli Bros.	Missoula	13.97	4.50	Standard.
D. O'Connor	Missoula	14.26	4.70	Standard.

MILK ANALYSIS—(Continued).

Dealer.	Address.	Total Solids. (%)	Fat (%)	Remarks.
L. M. Wittrup	Missoula	13.57	4.10	Standard.
G. T. Konek	Missoula	14.66	5.20	Standard.
Dennis Lee	Missoula	13.74	4.20	Standard.
Otto Quast	Missoula	13.06	3.70	Standard.
C. E. Quast	Missoula	13.28	4.10	Standard.
W. S. Custer	Missoula	12.97	4.40	Standard.
D. Calhoun	Missoula	14.46	5.30	Standard.
J. W. Kipe	Moore	10.69	1.30	Low in fat.
J. P. Corse	Paradise	14.51	5.05	Standard.
Mrs. Mrs. A. H. Osborne	Paradise	15.95	5.90	Standard.
Mary A. Maddox	Paradise	14.03	4.55	Standard.
T. L. Cope	St. Ignatius	13.19	4.40	Standard.
Lea	Whitefish	12.64	3.65	Standard.
M. J. W. Hori	Whitefish	13.36	4.20	Standard.
W. Hasdill Dairy	Whitefish	12.75	4.00	Standard.
W. Hasdill	Whitefish	10.05	1.50	Low in fat.
Charlie Sun	Whitefish	11.61	3.00	Low in fat.
C. H. Shaver	Whitefish	11.70	2.75	Low in fat.
C. W. Pruyn	Whitefish			

CREAM ANALYSIS.

Dealer.	Address.	Total Solids. (%)	Fat. (%)	Remarks.
Geo. Mengon	Columbia Falls	.....	30.0	Standard.
P. S. Olson	Harlowton	.....	20.0	Standard.
Fah & Kuhne	Lewistown	.....	26.0	Standard.
A. B. Powell	Lewistown	.....	36.0	Standard.
Henry Minard	Missoula	.....	25.0	Standard.
Meyers & Albers	Missoula	.....	20.5	Standard.
Richli Bros.	Missoula	.....	23.3	Standard.
L. M. Wittrup	Missoula	.....	27.0	Standard.
G. T. Kinch	Missoula	.....	23.0	Standard.
Dennis Lee	Missoula	.....	22.8	Standard.
Otto Quast	Missoula	.....	27.10	Standard.
C. E. Quast	Missoula	.....	20.2	Standard.
W. S. Custer	Missoula	.....	35.0	Standard.
D. Calhoun	Missoula	.....	26.8	Standard.

ICE CREAM ANALYSIS.

Address.	Solids.	Fat.	Total Solids. (%)	Fat. (%)	Remarks.
J. W. McCaldar	15.0	Standard.
Allen B. Ross	15.5	Standard.
J. W. Broadwater	20.0	Standard.
Peter Georgopoulos	16.0	Low in fat.
O. M. Elton	13.2	Standard.
W. S. Custer	24.3	Standard.
Sam Dawson	14.5	Standard.
John Bassini	16.3	Standard.
Guy L. Herrick	16.0	Standard.

ANALYSIS OF SOFT DRINKS.

Dealer.	Drink.	Remarks.
Nick Baatz	Ginger Ale	Adulterated, contains saccharin.
Nick Baatz	Lemon Soda	Adulterated, contains saccharin.
Nick Baatz	Birch Beer	Adulterated, contains saccharin.
Nick Baatz	Cream Soda	Adulterated, contains saccharin.
Nick Baatz	Iron Brew	Adulterated, contains saccharin.
Nick Baatz	Strawberry Soda	Adulterated, contains saccharin.
R. Jorgenson	Lemon Soda	Analysis incomplete.
R. Jorgenson	Raspberry Soda	Adulterated, contains saccharin.
R. Jorgenson	Root Beer	Adulterated, contains saccharin.
R. Jorgenson	Cherry Ale	Adulterated, contains saccharin.
R. Jorgenson	Cream Soda	Adulterated, contains saccharin.
Chas. Gies	Lemon Soda	Adulterated, contains saccharin.
Chas. Gies	Strawberry Soda	Adulterated, contains saccharin.
Chas. Gies	Root Beer	Adulterated, contains saccharin.

**BIRTHS REPORTED TO THE STATE BOARD OF HEALTH FOR THE
MONTH OF OCTOBER, 1912, AND COMPARATIVE BIRTH
AND DEATH RECORD IN THE STATE.**

	Males	Females	Totals	Deaths	Excess of births	Excess of deaths
Beaverhead	3	10	13	8	5	..
Broadwater	1	5	6	4	2	..
Carbon	15	18	33	12	21	..
Cascade (Excl. of)	10	11	21	7	14	..
Great Falls	21	17	38	14	24	..
Chouteau	2	4	6	5	1	..
Custer	14	9	23	10	13	..
Dawson	10	16	26	14	12	..
Deer Lodge (Excl. of)	1	...	1	8	...	7
Anaconda	6	8	14	15	...	1
Fergus	9	19	28	13	15	..
Flathead (Excl. of)	10	4	14	4	10	..
Kalispell	7	10	17	2	15	..
Gallatin (Excl. of)	9	9	18	1	17	..
Bozeman	4	7	11	10	1	..
Granite	2	1	3	1	2	..
Jefferson	3	5	8	6	2	..
Lewis and Clark (Excl. of)	3	5	8	10	...	2
Helena	13	7	20	16	4	..
Lincoln	6	3	9	3	6	..
Madison	7	6	13	4	9	..
Meagher	7	9	16	6	10	..
Missoula (Excl. of)	4	5	9	...	9	..
Missoula City	13	9	22	14	8	..
Musselshell	10	6	16	5	11	..
Park (Excl. of)	3	2	5	3	2	..
Livingston	9	10	19	8	7	..
Powell	3	7	10	8	2	..
Ravalli	8	6	14	5	9	..
Rosebud	3	4	7	3	4	..
Sanders	2	2	4	...	4	..
Silver Bow (Excl. of)	15	14	29	22	7	..
Butte	28	33	61	46	15	..
Sweet Grass	5	5	10	4	6	..
Teton	14	7	21	9	12	..
Valley	21	15	36	7	29	..
Yellowstone (Excl. of)	8	9	17	4	13	..
Billings	13	10	23	6	17	..
Blaine	7	7	14	1	13	..
Hill	14	19	33	7	26	..
TOTAL	343	353	696	325	377	10

**DEATHS (EXCLUSIVE OF STILLBIRTHS) REPORTED TO THE STATE
BOARD OF HEALTH FOR THE MONTH OF OCTOBER, 1912,
ARRANGED ACCORDING TO COUNTIES AND CITIES.**

Totals	All Other Causes	Alcoholism	Suicide	Violence	Acute Intestinal Diseases	Malignant Tumors	Organic Heart Disease	Nephritis	Pneumonia	Whooping Cough	Meningitis	Typhoid Fever	Measles	Scarlet Fever	Diphtheria	Tuberculosis	Small Pox	Spotted Fever
Beaverhead	2	1		2					1		1							
Broadwater			1							2						1		
Carbon					3											1		
Cascade (Excl. of)			1				1									1		
Great Falls						1		1										
Chouteau			3				1	1										
Custer									1	2		1				2		
Dawson									1									
Deer Lodge (Excl. of)																		
Anaconda									2	2						2		
Fergus							1	1	1							2		
Flathead (Excl. of)																1		
Kalispell								1										
Gallatin (Excl. of)																		
Bozeman								1	2	1								
Granite																		
Jefferson								2								1		
Lewis and Clark (Excl. of)									3							2		
Helena										2						1		
Lincoln																		
Madison												1						
Meagher																		
Missoula (Excl. of)																		
Missoula City										2	2	1						
Musselshell																		
Park (Excl. of)																		
Livingston																3		
Powell																		
Ravalli										1								
Rosebud																		
Sanders																		
Silver Bow (Excl. of)										2	1	2	1			4		
Butte											6					6		
Sweet Grass																		
Teton																		
Valley												1	1					
Yellowstone (Excl. of)																		
Billings																		
Blaine																		
Hill																		
TOTAL	119	6	10	45	6	15	34	21	23	3	4	4	1	1	34	3	35	325

Estimated population	393,000
Monthly death rate per 1,000 population .....	.89
Annual death rate per 1,000 population	10.68

COMMUNICABLE DISEASES.

SMALLPOX—Custer, 2; Powell, 2; Silver Bow (Excl. of Butte), 2; Butte, 2; total, 8; total last month, 8; total Oct. 1911, 7. ,

DIPHThERIA—Cases of Diphtheria were reported as follows: Beaverhead, 1; Fergus, 1; Gallatin, 1; Missoula City, 2; Park (Excl. of Livingston), 1; Livingston, 1; Butte, 3; Billings, 1; total, 11; total last month, 6; total Oct. 1911, 9.

SCARLET FEVER—Cases of Scarlet fever were reported as follows: Great Falls, 1; Dawson, 5; Gallatin (Excl. of Bozeman), 3; Bozeman, 2; Hilll, 1; Silver Bow (Excl. of Butte), 4; Butte, 4; total, 20; total last month, 13; total Oct. 1911, 28.

TYPHOID FEVER—Cases of Typhoid were reported as follows: Blaine, 1; Carbon, 3; Great Falls, 2; Custer, 1; Dawson, 7; Fergus, 1; Gallatin (Excl. of Bozeman), 1; Bozeman, 1; Helena, 1; Missoula City, 1; Park (Excl. of Livingston), 2; Livingston, 3; Rosebud, 1; Teton, 1; Yellowstone, (Excl. of Billings), 7; Billings, 9; total, 42; total last month, 73; total Oct. 1911, 90.

MEASLES—Madison, 1; Meagher, 3; Yellowstone, 2; total, 6; total last month, 8; total last year, 7.